REMARKS/ARGUMENTS

Favorable reconsideration of the Application as presently amended and in light of the following discussion is respectfully requested.

This Amendment is in response to the Office Action mailed on June 5, 2003. Claims 6-12 are pending in the application and stand rejected. Applicants have amended herein Claims 6-12 and submitted new Claims 13-16.

Applicants note with appreciation the time taken by the Examiner to identify several informalities with the claims and the specification and the suggestions made on how to overcome the same.

The Declaration has been objected to for being defective. Applicants have herein submitted a new Oath and Declaration in compliance with 37 CFR §1.67(a) and respectfully request reconsideration of the objection thereto.

FIG. 3 has been objected to because of informalities. Applicants have herein submitted a replacement for FIG. 3, correcting the informalities noted by the Examiner, and respectfully request reconsideration of the objection thereto.

The Specification has been objected to because of several informalities. Applicants have herein submitted replacement for several paragraphs in the Specification to correct the outstanding informalities and respectfully request reconsideration of the same.

Claims 6-12 are objected to because of several informalities. Applicants have herein submitted amendments to Claims 6-12 to correct the outstanding informalities and respectfully request reconsideration of the same.

Claims 6-12 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite. Applicants express appreciation to the Examiner for the time taken to identify and suggest corrections to overcome the indefiniteness problems with the claims. Applicants submit that the amendments to Claims 6-12 enclosed herein have overcome the rejection under 35 U.S.C.

§112 and respectfully request its withdrawal. It should also be noted that where needed, the present amendments to the Specification have corrected the proper antecedent basis for the terms changed in the claims to overcome the rejections under 35 U.S.C. §112.

Claims 6-9, and 12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Schneiter (U.S. Patent No. 4,890,860, hereinafter "Schneiter").

Applicants respectfully submit that Schneiter does not support a *prima facie* case of obviousness of the invention recited in the presently amended independent Claim 6. This is so because, even when combined, this prior art reference does not teach or suggest all of the claim limitations recited therein.

According to a feature of the invention as set forth in the presently amended independent Claim 6, a gas generator for actuating a vehicle occupant restraint device is recited, comprising: a first hollow body, gas generants filled densely in the first hollow body, an electric ignitor, and a holder fixed to the first hollow body and positioning the second hollow body in a center of the first hollow body while holding the plug of the electric ignitor, wherein a ratio of an empty volume to a volume defined by an inner surface of the first hollow body, an outer surface of the second hollow body, and the holder is less than 20%.

As disclosed in the Specification, the inventors of the present invention have discovered a way to resolve the difficulty of assembling the holder into the first hollow body without living excessive empty space, causing a delayed rupture of a membrane. With the invention presently recited in Claim 6, it is possible to significantly reduce the ignition delay to less than 2 ms while simplifying the manufacturing process and thereby reducing the number of parts of the gas generator (Specification, pages 2 and 3).

Schneiter discloses a gas generator 10 that includes an elongated cylindrical member 12, an end cap 14 integral therewith, and a metallic igniter member 18 having a plug member 20 positioned within a cavity 22 of a plate-like member 24 which engages the end cap 14.

Contained within an extension portion 38 is a squib initiator 42 connected to electrical lead wires 44. Contained within the igniter tube 18 between the plugs 20 and 48 is a suitable pyrotechnic material 52. The combustion chamber 56 is enclosed by a perforated metal basket 60. Disposed within the combustion chamber 56 is a plurality of wafers 74 of combustible gas generating material which are arranged in a side by side array and spaced apart from each other, having the shape of washers. The volumetric loading fraction of the stacked wafer grain 72 is approximately 73 percent. For stacked wafer grains, volumetric loading densities in the range from 65 to 80 percent are believed to be practical (Schneiter, col. 2, line 49 – col. 5, line 25, emphasis added).

Applicants respectfully submit that Schneiter cannot support a *prima facie* case of obviousness of the present invention because it does not teach or disclose at least two of the recited limitations in Claim 6. First, the plurality of wafers 74 of Schneiter having the shape of a washer (*Id.*, col. 5, line 1) arranged in a side by side array and spaced apart from each other is not gas generants filled densely in a first hollow body as recited in the presently amended Claim 6.

Secondly, the outstanding Office Action acknowledges that Schneiter fails to teach an empty space ratio of less than 20%. In addition, the Office Action asserts that given that Schneiter teaches that it is desirable to reduce the empty space in the gas generator so that the size of the gas generator can be minimized, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Schneiter by providing the gas generator with an empty space ratio of less than 20% in order to further reduce the size of the gas generator. Further, it was asserted that such modification involves a minor change in value and it is generally considered to be well within the level of ordinary skill in the art. Applicants respectfully disagree and submit that such a minimization is not possible based on the teaching of the cited reference and the conclusion to the contrary cannot be factually

supported substantially based on the disclosure of Schneirter, but it is simply based on hindsight.

Applicants respectfully submit that the volumetric loading fraction of the stacked wafer grain 72 of approximately 73 %, i.e., volume ratio as recited of 27%, is not a volume ratio of an empty volume to a volume defined by an inner surface of the first hollow body, an outer surface of the second hollow body, and the holder that is less than 20%. Practically as disclosed, in the limit, i.e., wafer grains stacked against each other, the volumetric loading would be 80% (or a volume ratio as claimed of 20%) as disclosed and taught by Schneiter. Therefore, at the lowest value possible given the taught geometry, the recited volume ratio of Schneiter would be 20%. Applicants have claimed a volume ratio that is less than 20%. The disclosed range is outside of the claimed range and, physically, it is not possible for one of skill in the art based on the teachings of Schneiter to obtain a volume ratio of less than 20%.

Based on the foregoing reasons, Applicants respectfully submit that Schneiter does not make obvious the invention recited in Claim 6. In addition, Claims 7-9 and 12, depending from Claim 6, should be allowed. Therefore, Applicants respectfully request that the rejection of Claims 6-9 and 12 under 35 U.S.C. §103(a) in view of Schneiter be withdrawn and the claims passed to issuance.

Claims 6, 7, 10, and 11 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Avory et al. (U.S. Patent No. 5,648,634, hereinafter "Avory") in view of Nilsson et al. (U.S. Patent No. 4,734,265, hereinafter "Nilsson") and Schneiter. The outstanding Office Action acknowledges that Avory fails to teach compressing the gas generants in order to reduce the empty space ratio to less than 20%. The outstanding Office Action further asserts that Nilsson teaches a gas generant powder 54 that is compressed within a first hollow body 10. The Office Action asserts that Schneiter teaches reducing an empty space ratio to 20-35% in order to minimize the size of the gas generator.

Applicants respectfully submit that Avory, Nilsson, and Schneiter, individually or in any combination thereof, do not support a *prima facie* case of obviousness of the invention recited in the presently amended independent Claim 6. This is so because, even when combined, these prior art references do not teach or suggest all of the claim limitations recited therein.

As noted above and acknowledged in the outstanding Office Action, Schneiter does not teach or disclosed the recited volume ratio of less than 20%. In addition, as already explained, it is not possible for one of ordinary skilled in the art to reach volume ratios less than 20% based on the teachings of Schneiter. Furthermore, Avory and Nilsson, as acknowledged in the outstanding Office Action, do not teach or suggest to reduce the empty volume ratio to less than 20%, thus they do not remedy the deficiency of Schneiter.

Based at least on the foregoing discussion, Applicants respectfully submit that Schneiter, Avory, and Nilsson, individually, or in any combination thereof, do not make obvious the invention recited in the presently amended Claim 6. Furthermore, Claims 7, 10, and 11 are allowable, among other reasons, as depending directly from Claim 6, which is allowable. For the foregoing remarks, Applicants respectfully request that the Examiner withdraw the rejection of Claims 6, 7, 10, and 11 under 35 U.S.C. §103(a) in view of Schneiter, Avory, and Nilsson and pass Claims 6, 7, 10, and 11 to issuance.

Applicants have submitted herein new Claims 13-16. Claims 13 and 14 recite a spacer made of a gas generant composition. Support for the subject matter of Claims 13 and 14 is found in the as-filed Specification on page ~~18~~ 13, lines 5-9. Claims 15 and 16 further limit the volume ratio of Claim 6 to be preferably less than 15% (Claim 15) and most preferably less than 10% (Claim 16). Support for the subject matter of Claims 15 and 16 is found in the as-filed Specification on page 5, line 18 – page 6, line 2. Based at least on the foregoing discussion of the outstanding rejections, Applicants respectfully submit that the new Claims

13-16 are neither anticipated by any one of Schneiter, Avory, and Nilsson, individually, nor are they made obvious by Schneiter, Avory, and Nilsson, individually or in any combination thereof.

Based at least on the foregoing reasons, Applicants believe the present application is in condition for allowance and respectfully solicit an early Notice of Allowability of Claims 6-16.

Respectfully submitted,

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